DOCUMENT RESUME

ED 224 821 TM 830 003

AUTHOR	Borkow, Nancy
TITLE	Analysis of Test Score Trends: Implications for Secondary School Policy--A Caution to Secondary School Administrators.
INSTITUTION	National Inst. of Education (ED), Washington, DC. Teaching and Learning Program.
PUB DATE	Sep 82
NOTE	15p.
PUB TYPE	Information Analyses (070) -- Viewpoints (120)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Administrators; Basic Skills; Curriculum Evaluation; *Curriculum Problems; *Educational Trends; High Schools; *School Policy; *Scores; *Secondary School Curriculum; Trend Analysis
IDENTIFIERS	*Data Interpretation; *Test Score Decline

ABSTRACT

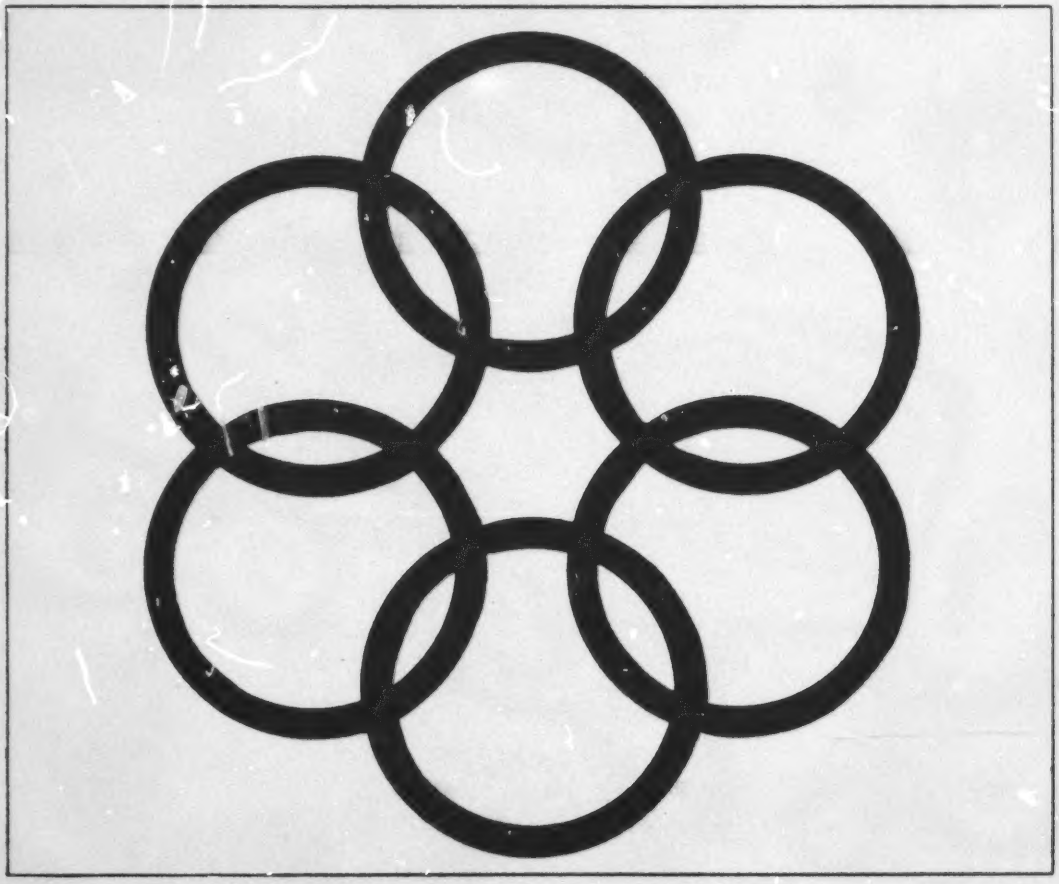
This report challenges a major interpretation of test data and cautions against decision-making without first considering alternative interpretations. A review of test score trends over the past 15 years indicates that compensatory education programs (competency-based education, minimum competency testing, etc.) have had a positive impact and that the back-to-basics movement is primarily responsible. The review also indicates that courses for the above-average high school student are being adversely effected by a too-narrow curriculum emphasis on basics. The better students are showing the greatest score declines, and, in tests of high order skills, all students, even the brightest ones, continue to show a downward trend. According to current test score trends, tomorrow's students with a more solid foundation in basic skills will be prepared to face an academically challenging curriculum, but the schools may be unprepared to provide it. Another consideration is the effect of current policy on the school system itself. If the same kinds of curriculum changes continue to be implemented, public high schools may inadvertently put themselves out of business. They may reduce their academic standards so drastically that they will no longer be viewed as credible educational institutions. (Author/PN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED224821

Analysis of Test Score Trends



TM 830 003

The National Institute of Education
U.S. Department of Education
Washington, D.C. 20208

ANALYSIS OF TEST SCORE TRENDS: IMPLICATIONS FOR SECONDARY SCHOOL POLICY-- A CAUTION TO SECONDARY SCHOOL ADMINISTRATORS

Nancy Borkow

U.S. DEPARTMENT OF EDUCATION
T.H. Bell, Secretary

OFFICE OF EDUCATIONAL RESEARCH AND IMPROVEMENT
Donald J. Senese, Assistant Secretary

NATIONAL INSTITUTE OF EDUCATION
Robert W. Sweet, Jr., Acting Director

Program on Teaching and Learning
Shirley Jackson, Associate Director

September 1982

AUTHOR'S NOTE

This paper does not represent an exhaustive analysis of data, nor does it present a definitive set of conclusions. Rather, it challenges one major interpretation of test data and cautions against making further policy decisions without first considering alternative interpretations.

ANALYSIS OF TEST SCORE TRENDS: IMPLICATIONS FOR SECONDARY SCHOOL POLICY-- A CAUTION TO SECONDARY SCHOOL ADMINISTRATORS

Many people point to test results of the past 20 years as evidence that high schools have not been doing their job. Concern in the educational community and public dissatisfaction with student performances have persuaded high school administrators to reevaluate student needs and curriculum offerings. The result is that many high schools are now modifying their curriculums to emphasize the basics.

If a large and growing body of high school students does need instruction in basic skills, the present emphasis is appropriate. However, there is evidence suggesting that this is not the case. In fact, a review of test score trends over the past 15 years indicates that just the opposite is true. The review also indicates that courses for the above-average high school student are being adversely effected by this new emphasis on the basics.

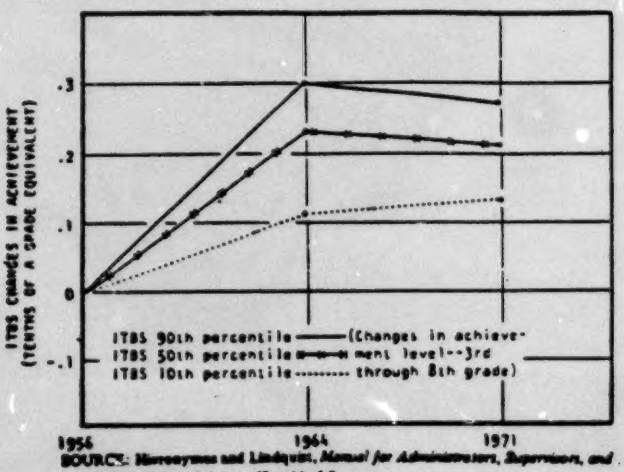
The Decline

In the late 1960's, after more than a decade of steady increases, achievement test scores of elementary and secondary students began to decline. At the elementary level the decline lasted through much of the 1970's. It still continues at the secondary level.

As shown in Figure 1, an analysis by Armbruster (1977) of the Iowa Tests of Basic Skills (ITBS) indicates an overall decline that began in 1964 for grades 3 through 8.

Figure 1

NATIONAL TRENDS IN STUDENT ACHIEVEMENT



SOURCE: Hieronymus and Lindquist, *Manual for Administrators, Supervisors, and Counselors, Forms 5 & 6*, p. 67, table 6.8.

Similar findings are reported by Harnischfeger and Wiley (1977) in their analysis of the Comprehensive Tests of Basic Skills (CTBS). They reported declines in math and reading from grade 5 on and in language from grades 6 through 10. With few exceptions analyses of statewide achievement tests show similar downward trends. Armbruster's (1977) comprehensive review of statewide achievement tests results through 1973 indicates that, starting in the late 1960's or early 1970's, test results for all levels above grade 3 simultaneously began to drop below achievement norms established in the mid- and late 1960's. He reported also, that each year the same children dropped further and further behind as they progressed through the grades.

A review of the National Assessment of Educational Progress (NAEP) reveals more declines over the past 10 years for secondary students. Math results for 1973 and 1978 show declines for the 17-year-olds tested and reading results show declines for 17-year-olds in the lower achievement groups. NAEP data show that the students "who do slightly better on mathematical tests of computing...do slightly worse on math tests that include complicated word problems. They may do better on a test of grammar, but they do not do as well in writing a persuasive essay. And in reading they do less well on tests of inferential comprehension" (American Enterprise Institute, 1981, p. 55). In other words, students who are doing better in the basics are doing worse on more difficult aspects of the same subject.

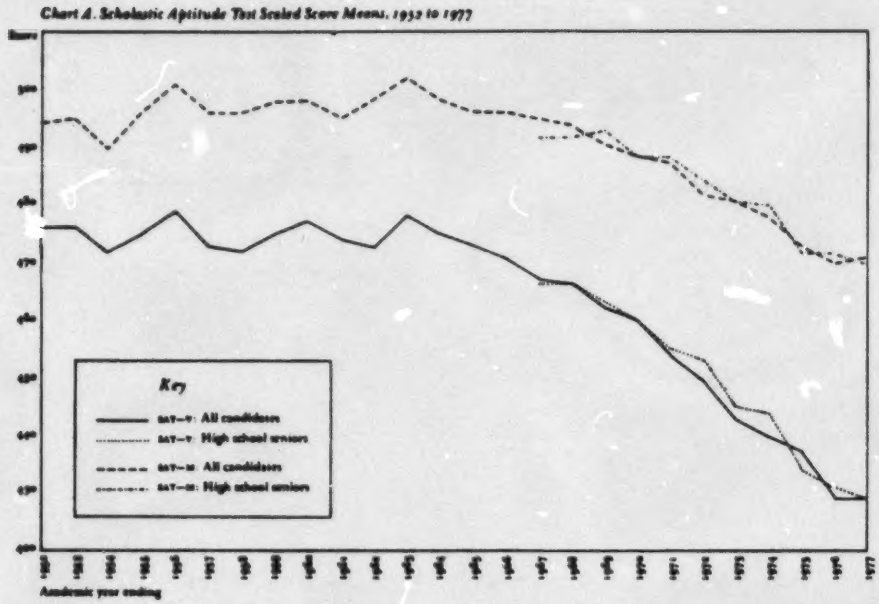
The 1979-1980 National Assessment of Reading and Literature shows that "the percentage of 17-year-olds writing adequate interpretations dropped a startling 10 percentage points--from 51% to 41% (since the 1970-1971 assessment)" (National Assessment of Educational Progress Newsletter, 1981, p. 4.). Roy Forbes, the National Assessment director believes that "coupled with the declines in inferential comprehension seen for 17-year-olds...these data appear to signal some erosion in older teenagers' thinking and evaluative skills" (National Assessment of Educational Progress Newsletter, 1981, p. 4.). NAEP also reports that, in general, the highest achievement groups and students from advantaged urban areas continue to show the greatest score decline.

States that have implemented longitudinal testing programs similar to NAEP's also report declines in secondary students' achievement. California reports that its high school seniors' reading scores continued to decline throughout the 1970's (California State Department of Education, 1979-1980 Report). Utah reports that 11th grade math scores decreased between 1975 and 1978 testing periods (Utah State Office of Education, personal communication, 1979). Pennsylvania reports declines in 11th grade 1981 reading scores as well as math score declines for 11th graders throughout the 1970's and early 1980's (Pennsylvania Department of Education, personal communication, 1981). Wisconsin reports declines in 12th grade math scores, from the 1976 testing period to the present (Wisconsin Department of Public Instruction, 1980) and Kentucky reports declines in 10th grade math scores from its first testing period in 1979 to the present (Kentucky State Department of Education, personal communication, 1981).

A review of the Scholastic Aptitude Test (SAT) and the American College Testing Program (ACT) scores shows similar trends. As Figure 2 indicates, starting in 1964 both verbal and math SAT averages began to decline (College Entrance Examination Board, 1977).

Figure 2

MEAN SAT SCORES, 1952-1977



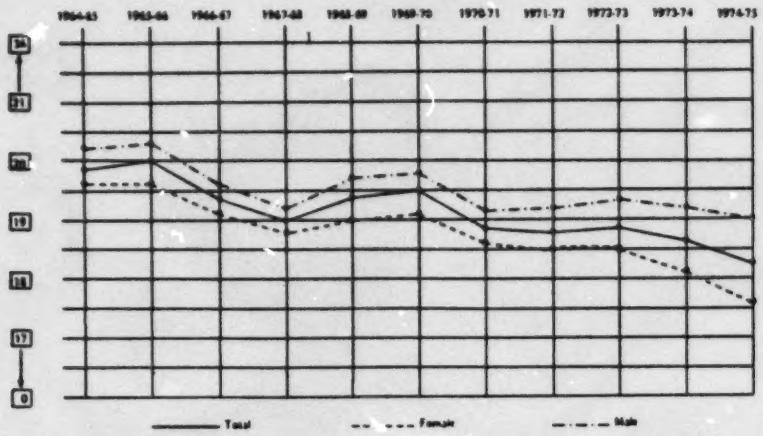
Verbal and math SAT mean scores continued to decline throughout the 1970's and the 1980 testing year. Educational Testing Service (ETS) reports that between 1977 and 1980, verbal averages dropped another 5 points and math averages dropped another 4 points (Educational Testing Service, 1981). ETS also reports that throughout the 1970's the number of students scoring over 600 in both verbal and math sections dropped dramatically (Washington Post, 1981).

Recently released 1981 SAT results show that average verbal and math scores have remained stable with the 1980 results. But as stated by Robert Cameron, Executive Director of Research Development for the College Board, it is too early to tell "whether this signals the end of the score decline or simply an interruption in the 18 year trend" (Washington Post, 1981, p.2).

As Figure 3 shows, ACT mean composite scores reflect a similar downward trend (Lipitz, 1977).

Figure 3

ACT MEAN COMPOSITE SCORES 1964-1965 THROUGH 1974-1975
FOR COLLEGE-BOUND STUDENTS



Causes

Several sources do an excellent job of examining the causes of the test decline (e.g., Armbruster, 1977; College Examination Board, 1977; Harnischfeger and Wiley, 1978; American Council on Education, 1977). Generally they all agree on the following: that there was no single cause for the decline, that several factors have differentially contributed to the decline and that it is extremely difficult, if not impossible, to assess the impact of one factor separate from another. There is also general agreement as to the most "probable" contributing factors:

Societal Influences. These include a growing permissive attitude toward youth, a focus on student rights, the impact of television on learning (i.e., TV encourages "passive" learning rather than learning by "doing"), a general apathy toward achievement and a lack of respect for established institutions.

School Influences. These influences include diminished concern with discipline, automatic grade-to-grade promotions, a reduction in homework, an increased tolerance for absenteeism, an increase in the number of electives offered along with a decrease in academic requirements, the "new math," open classrooms, and innovative nonphonetic reading programs.

Changes in the Test-Taking Population. It has been estimated that approximately two-thirds to three-fourths of the SAT decline during the 1964-1970 testing period was due to a "compositional"change in the test-taking population (College Entrance Examination Board, 1977). "At that time, there were significant increases...in the proportionate numbers in the test-taking population of three groups that have always registered substantially lower than average scores on this test: students from lower-socio-economic status families, members of minority ethnic groups and (on the Mathematical but not on the Verbal portion of the test) women" (College Entrance Examination Board, 1977, p. 15). This trend is supported by the ACT Student Profile data which show that in the mid- and late 1960's larger percentages of students with comparatively lower high school grade averages were going to college (Ferguson, 1978). Since the make-up of the SAT and ACT test-taking populations has not changed appreciably since the early 1970's, declines occurring since that time are generally attributed to the previously cited factors.

A Recent Trend

In the early and mid-1970's, in an effort to halt declining scores, school systems across the nation began to tighten academic standards. This brought a renewed emphasis on basic skills, as both elementary and secondary schools began redesigning curriculums to focus on the "basics." The back-to-basics movement then became a national phenomenon, as state and local educators began to develop and implement a variety of comprehensive teaching and testing programs--e.g., competency-based education and minimum competency testing. Now, a growing body of evidence indicates that these compensatory education programs have had a positive impact (Forbes, 1981) and that the back-to-basics movement is primarily responsible. However, changes such as fewer automatic grade-to-grade promotions, increased efforts to weed out incompetent teachers, and firm discipline must also be given their share of credit (U.S. News and World Report, 1981).

Iowa reports that since the mid 1970's students in grades 6 and 8 have increased their scores in the ITBS in both math and reading (Hoover, H.D., personal communication, 1981). Michigan reports score increases in state reading assessments since 1973 for grades 4 and 7 (Roeber, E., personal communication, 1981). Fairfax County, Virginia, students have recently shown steady upward trends in grades 4 and 6 (Endo, T. personal communication, 1981). Washington, D.C., students in grades 3, 6, and 9 have shown steady increases in basic skills since 1975 (Washington Post, 1980). The Houston Public Schools report steady increases in the ITBS since 1976 for grades 3 through 6 (Velentin, 1980), and the New York Times (1981 p.11) reports that in New York City, "more than half the pupils in the elementary and junior high schools are reading above the national average, a figure that exceeded anything the district had attained during the 1970's."

U.S. News and World Report (1981 p. 51) cites other examples of recent score increases. In Atlanta, "43 percent of students in grades 1 through 8 topped national reading averages, up from 31 percent last year. In math, 47 percent scored above the national average, 33 percent did last year." In New Jersey "93 percent of third graders passed reading tests this year, compared with 86 percent in 1978."

A review of NAEP results over the past decade also reveals improvement in student achievement. NAEP reports:

- o In reading, 9-year-olds have continued to show increases.
- o In mathematics, results for 1973 and 1978 show that 9-year-old black students improved relative to their white counterparts.
- o In writing, disadvantaged urban 17-year-olds have made steady gains.

Further signs of improvement are noted by the American Enterprise Institute (1981 p. 55). They state that NAEP results indicate that "In the basic areas in each subject, students are doing consistently better. In Mathematics, for example, they can do simple computing--adding and subtracting--better than before; they perform better on tests of literal comprehension."

Focus on the Basics

Clearly, though, the news is not all good. As this review indicates, at the high school level overall test scores continue to decline. Many educators have assumed that the way to stop the test score decline is to make further changes in the high school curriculum. For many schools this means an increased emphasis on the basics, often at the expense of more advanced academic offerings. Several instances can be cited.

- o A survey completed by Florida's language arts supervisors found that many of Florida's high school literature courses now focus on improving reading skills rather than on literature appreciation. Although students may improve their reading skills, they at the same time, lose an opportunity to develop an appreciation for literature. Another result of the curriculum change is that teachers trained to teach literature are now responsible for teaching reading--a skill they may not have. The survey also found that the number of literature courses offered has decreased, while the number of writing skills courses has increased (Strebeck, personal communication, 1981).

- Norman Goldman, Director of Instruction for the New Jersey Education Association, reports in a summary of New Jersey curriculum trends for the 1980's, that New Jersey's "public high schools appear to be reducing the number of English electives" (p. 315), and as a result of the statewide emphasis on basic reading skills, high school teachers are "teaching reading through content areas" (p. 319). He states that the back-to-basics trend has influenced social studies instruction by including the teaching of "reading and writing within the social studies content area" (p. 319). He also states that "there have been some problems related to keeping the science curriculum 'alive' in the midst of the 'back to basic' focus on reading and mathematics" (p. 319).

- William McMillian, Director of the Assessment Section of the Minnesota State Department of Education, states his concern that high schools are "hitting on the basics too hard." He points out that though Minnesota's overall statewide test scores have, over the years, remained consistently high, significantly outperforming the nation, there has been a decline in higher level skills at all grade levels. McMillian attributes this decline to a too-narrow focus on the basic skills (personal communication, 1981).

- A teacher in North Hollywood, California, reported on a recent PBS documentary, "Who's Keeping Score?" that in order to provide the remedial instruction needed, her high school increased the number of basics offered. At the same time, however, due to the redirection of teaching time and school dollars, her high school has also been forced to eliminate some advanced course offerings from the curriculum (Maryland Instructional Television, 1981).

- Lorenzo C. Schmidt, a member of the California Board of Regents, on the same PBS special, stated his concern about the impact of "Minimum Competency Testing" (MCT) on the high school curriculum. He said that teachers are pulled from regular classrooms to teach the remedial courses to those students who failed the MCT. What occurs is "that the entire student body then--other portions of the student community--lose a calculus class or an English V class or a class on Shakespeare..." (Maryland Instructional Television, 1981, Day 2, p. 34).

- Ralph Tyler, an educational consultant appearing on the PBS special, said that a panel established by the National Education Association and the Florida Teaching Profession found that in Florida, "the great emphasis given to reading and mathematics forced teachers to focus three-fourths or more of teaching time on these subjects, to the serious neglect of science, social studies, literature, health, and the arts" (Maryland Instructional Television, 1981, Day 1, p. 59).

Implications

One might argue that a combination of factors--not just declining scores, but severe budget cuts and reduced student enrollments--has left the schools no choice but to limit course offerings in this way. In fact, at first glance, this policy may appear to be a most realistic and practical solution to many problems that the schools are facing. On the other hand, according to many educators, the high schools are "hitting the basics too hard." And, as this analysis of test score trends shows, some high school students have already begun to pay the price of a too-narrow focus on basics. The better students are showing the greatest score declines. And, in tests of high order skills, all students, even the brightest ones, continue to show a downward trend.

These findings suggest that the emphasis on the basics at the high school level, and its accompanying lack of intellectually challenging instruction, has "set standards so low that academically talented students are pulled down at the same time that less capable pupils are being pulled up" (U.S. News and World Report, 1981).

NAEP's analysis of the 1979-1980 Assessment of Reading and Literature indicates a similar finding. The following statement appears in the NAEP report: "Students' successes with quick multiple-choice inferential tasks and their failures to substantiate their inferences are derived from their classroom experiences. Students...may not be getting opportunities to engage in the extended discourse...that teaches them how to explain and substantiate their inferences in even the most basic ways" (p. 24).

As bad as the present situation may appear, however, one need only look to the future for an even gloomier picture. According to current test score trends, future generations of high school students will enter secondary schools with a more solid foundation in basic skills. Therefore, their academic needs will be quite different from today's secondary students. Tomorrow's students will be prepared to face an academically challenging curriculum, but, if the current trend continues, the schools will be unprepared to provide it.

Another consideration is the effect of current policy on the school system itself. If the same kinds of curriculum changes continue to be implemented, public high schools may inadvertently put themselves out of business. They may reduce their academic standards so drastically that they will no longer be viewed as credible educational institutions. In other words, they may render the high school diploma essentially valueless.

Recent increases in private school enrollments have been due, in part, to the lack of public confidence in the public school system's ability to do its job. The Gallup Poll reports that public opinion is now beginning to reverse itself (U.S. News and World Report, 1981, p. 50). Many educators have taken the optimistic viewpoint that schools, having "reached bottom in terms of standards," are now beginning to "turn around" (U.S. News and World Report, 1981, p. 50). It would be unfortunate if, in reacting to the immediate set of pressures, the schools unintentionally end up solving one problem by creating a whole set of others.

REFERENCES

Armbruster, F. Our Children's Crippled Future. New York: Quadrangle (The New York Times Book Company), 1977.

American Council on Education. "Numerous Factors Blamed in Decline of Scores on SAT." Washington, D.C.: American Council on Education, August 26, 1977.

American Enterprise Institute. Debating National Education Policy: The Question of Standards, 1981-1982 High School Debate Analysis. Washington, D.C.: American Enterprise Institute, 1981.

California State Department of Education. Student Achievement in California Schools: 1980-81 Report. Sacramento: California State Department of Education, 1981.

College Entrance Examination Board. On Further Examination: Report of the Advisory Board on the Scholastic Aptitude Test Score Decline. New York: College Entrance Examination Board, 1977.

Feinberg, L. "Number of High Scores on College Board Exams Drops Dramatically." Washington Post. March 2, 1981.

Ferguson, R. "The Decline of ACT Test Scores: What Does It Mean?" In L. Lipsitz (Ed.). Test Score Decline: Meaning and Issues. Englewood Cliffs, New Jersey: Educational Technology Publications. 1977.

Forbes, R. "Test Score Advances Among Southeast Students: A Possible Bonus of Government Intervention." Phi Delta Kappa, January, 1981.

Goldman, N. "An Educational Program for the 1980's." In S.R. Laccetti (Ed.), The Outlook on New Jersey. Union City, New Jersey: Wm. H. Wise and Co., Inc., 1979.

Harnischfeger, A., and Wiley, D. "The Marrow of Achievement Test Score Declines." In L. Lipsitz (Ed.), Test Score Decline: Meaning and Issues. Englewood Cliffs, New Jersey: Educational Technology Publications, 1977.

Maeroff, G. "Reading Results Give the Schools a Lift." New York Times, September 6, 1981.

Maryland Instructional Television. "Who's Keeping Score." Transcript of programming. Washington, D.C.: National Institute of Education, 1981.

National Assessment of Educational Progress. "Reading Skills Up At Age 9; Warning Signs for Older Students." Press release. Denver, Colorado: National Assessment of Educational Progress, April, 1981.

National Assessment of Educational Progress. Reading, Thinking and Writing: Results From the 1979-80 National Assessment of Reading and Literature. Denver, Colorado: Education Commission of the States, October, 1981.

Valentin, C. Elementary School Profiles: 1979-80. Houston: The Houston Independent School District, 1980.

Washington Post. "College Entrance Exam Scores Hold Steady for a Change." September 29, 1981.

Wellborn, S., Davidson, J., Galligan, M., & English, C. "Signs of Hope for Our Schools." U.S. News and World Report, September 7, 1981.

Wisconsin Department of Public Instruction. 1980 Wisconsin Pupil Assessment Program Report. Wisconsin: Wisconsin Public School District, 1980.

* US GOVERNMENT PRINTING OFFICE: 1982- 779/37